BEFORE THE

Federal Communications Commission

WASHINGTON, D. C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum to	)	
Encourage Innovation in the	)	ET Docket No. 92-9
Use of New Telecommunications	)	
Technologies	)	

COMMENTS OF THE PUBLIC SAFETY MICROWAVE COMMITTEE

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To: The Commission

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The Public Safety Microwave Committee ("PSMC") hereby submits the following Comments in response to the Commission's Notice of Proposed Rulemaking in the above-captioned proceeding, FCC 92-20, released February 7, 1992.[1/]

STATEMENT OF INTEREST

PSMC represents state and local government agencies throughout the United States who use over 6,000 2 GHz (1850-1990 MHz and 2130-2150/2180-2200 MHz) fixed-microwave facilities for critical public safety communications. PSMC consists of the Associated Public-Safety Communications Officers, Inc. ("APCO"), the National Association of State Telecommunications Directors ("NASTD"), the International Bridge, Tunnel & Turnpike Association ("IBTTA") and the County of Los Angeles, California.

[1/] On June 4, 1992, the Commission issued an "Order Denying Request to Defer Comment Dates" beyond June 5 (DA 92-694). However, pursuant to Section 1.46, the Order automatically extended the comment deadline to June 8, 1992.

APCO is the nation's oldest and largest public safety communications organization representing the interests of all elements of the public safety radio community. APCO serves as the FCC's certified frequency coordinator for all Part 90 Police, Local Government and 420 MHz and 800 MHz Public Safety channels. APCO has over 9,500 members involved in the operation of radio communications systems for police, fire, local government, emergency medical, forestry conservation, highway maintenance, and other public safety services.

NASTD, a cooperating organization with the Council of State Governments, is an association of telecommunications directors from 49 states. NASTD's members administer telecommunications systems serving state public safety agencies including emergency medical service, fire, law enforcement, corrections, public works, and transportation.

IBTTA is the association of the worldwide toll industry, with members in 22 countries. Many of its members are state turnpike authorities who use 2 GHz microwave facilities to provide vital communications links for highway patrol and emergency maintenance mobile radio systems.

The County of Los Angeles has a population of 9.2 million, representing more than one-third of the population of the State of California. The Los Angeles County Sheriff's Department is the third largest police agency in the United States and operates one of the largest and most sophisticated public safety communications systems in the

world. Mobile voice and data communications for the system are provided through a county-wide network of transmitters tied together through a microwave system that includes eighteen 2 GHz paths.

INTRODUCTION AND SUMMARY

The Commission proposes to reallocate the 2 GHz bands for new technologies such as personal communications services ("PCS"). PSMC supports efforts to promote new communications technologies and believes that some new technologies, such as private PCS networks, could have important public safety applications. However, PSMC and its members have consistently opposed, and continue to oppose, allocating frequencies for these new services in the 2 GHz microwave bands because of the potential harm to existing public safety communications facilities.[2/]

The Commission now proposes that existing state and local government licensees of fixed microwave facilities be allowed to remain on 2 GHz frequencies indefinitely. Notice at ¶25. PSMC strongly supports this "grandfathering" provision, which is rooted in the statutory requirement that public safety radio services receive "top priority" in frequency allocation matters.

[2/] See, e.g., Statement of Captain B. E. Wenke on behalf of PSMC before the Commission's en banc hearing on Personal Communications Services (Dec. 5, 1991), and comments and reply comments filed in Gen. Docket 90-314, RM-7618, and Gen. Docket 89-554 by APCO, Los Angeles County and the Los Angeles County Sheriff's Department

PSMC remains deeply concerned, however, that the FCC's proposal does not extend similar primary status to new and expanded state and local government 2 GHz systems that will be needed in the future.[3/] State and local governments are facing growing demand for microwave facilities to expand existing operations and to provide critical backbone for new area-wide mobile radio systems. The Commission's proposal will force state and local governments to seek alternatives to 2 GHz to meet those increasing demands for microwave capacity. However, in many circumstances, feasible alternatives to 2 GHz frequencies are unavailable. At least in those situations, the Commission should allow state and local governments to obtain 2 GHz licenses on a primary basis.

The Commission should also allow state and local government users to switch frequencies within the 2 GHz bands without losing their primary status. This would protect important public safety needs, while providing a voluntary mechanism to create "open space" for new users of the band.

[3/] The Commission stated in the Notice that 2 GHz applications filed after January 16, 1992, will be granted only on a "conditionally secondary" basis. On May 14, 1992, the Commission issued a Public Notice stating that it would continue to grant applications for major modifications to existing 2 GHz systems on a primary basis during the pendency of ET Docket 92-9. The Commission also stated that primary status would apply "in certain situations where additional links may be required to complete a communications network, or where new facilities and/or frequencies are operationally connected to a system licensed prior to January 16, 1992."

Finally, PSMC is also concerned about the serious danger of interference to 2 GHz public safety fixed-microwave operations from new co-primary mobile operations in the same band. If sharing of the band is allowed, new users must protect existing state and local government operations from any interference that might compromise vital public safety communications operations. These protections should include use of regional frequency coordination committees and mandatory transmitter identification systems to prevent and locate interference.

I. THE COMMISSION CORRECTLY PROPOSES TO MAINTAIN THE PRIMARY STATUS OF PUBLIC SAFETY AGENCY USE OF THE 2 GHz MICROWAVE BANDS

Continued state and local government operation of fixed microwave systems in the 2 GHz band on a "primary" basis is vital to the safety of life and property. Therefore, the Commission's proposal to maintain this "primary" status is dictated by the Communications Act, which requires that public safety radio communications operations receive top priority over other potential users of the spectrum. Any contrary approach would breach this statutory mandate, creating an enormous financial burden for state and local governments. Moreover, it would have compromised the ability of state and local governments to provide the communications services necessary for the protection of life and property.

A. The Nature and Extent of Public Safety Use of 2 GHz

State and local government use 2 GHz microwave facilities to provide the backbone for critical mobile radio communications systems for police, fire, emergency medical and other public safety agencies. Microwave provides critical links between remote radio sites and key facilities for mobile radio and data communications, and connects command and control networks vital for efficient public safety agency activities.

An example of public safety use of 2 GHz microwave is the Arkansas State Police state-wide 800 MHz trunked mobile radio system. This highly spectrum efficient communications system uses eighty-four 2 GHz microwave paths to tie together the numerous base stations and remote transmitter sites necessary to provide state-wide mobile police radio coverage.

Similar systems exist or are being built in other jurisdictions throughout the country to accommodate increased use of area-wide trunked communications, often at the Commission's own urging through the National Public Safety Plan. Examples include the Indiana State Police, which has a state-wide communications system utilizing 50 microwave paths, 44 of which are using frequencies in the 2 GHz band, and the State of Kentucky, which has a state-wide microwave network that supports, among other public safety services, its Emergency Warning System. Kentucky's system makes use of eighty-two 2 GHz microwave paths.

The Los Angeles County Sheriff's Department's communication system also depends heavily on 2 GHz microwave to integrate 38 remote communications sites which use 276 transmitters and 630 receivers. The critical role of its microwave system was demonstrated during the recent Los Angeles riots, which required extraordinary area-wide coordination between the thousands of police officers and other users of the County microwave system, including fire fighters on the streets, police and fire stations, and command centers. On May 1, during the peak of the riot, there were a record 600,000 data messages transmitted over the County's communications system. Microwave communications links have proven to be invaluable to the Sheriff's Department both during extraordinary events such as the recent riots, and on a day-to-day basis as its attempts to satisfy the public safety needs of over 9.2 million people.

One of the largest 2 GHz microwave systems in the country is operated by the State of California. Its state-wide microwave system currently has ninety-eight 2 GHz paths and is used primarily to interconnect dispatch centers with remote base stations associated with the State's public safety mobile radio communications systems. Among the agencies that depend upon this microwave network are the California Highway Patrol, Department of Forestry and Fire Protection, Department of Transportation, Office of Emergency Services (which coordinates response to

earthquakes and other disasters), and Department of Justice (for its anti-drug and anti-organized crime operations).

These are just a few examples of the vital role of 2 GHz microwave facilities for public safety communications operations. Comparable public safety uses of 2 GHz microwave frequencies can be found in cities, counties, and states throughout the nation. The Commission's Office of Engineering and Technology ("OET") Study indicates that there are over 6,000 2 GHz microwave facilities licensed to state and local government agencies.[4/]

B. The Communications Act Requires That the FCC Give Top Priority to Public Safety Use of the Spectrum

The crucial public safety uses of scarce radio spectrum described above must receive preference over other less critical services. Congress has repeatedly mandated that "public safety consideration should be a top priority when frequency allocation decisions are made." House Rep. No. 98-356, 98th Cong., 1st Sess. 27 (1983), reprinted in 1983 U.S. Code Cong. & Admin. News 2219, 2237 (emphasis added). As the United States Court of Appeals explained in National Association of Broadcasters v. FCC, 740 F.2d 1190, 1213-14 (D.C. Cir. 1984), Section 1 of the Communications Act, subsequent amendments to the Act, and the underlying legislative history thereto, make clear that the Commission must allocate spectrum in a manner that promotes the "safety

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[4/] "Creating New Technology Bands for Emerging Telecommunications Technology," OET/TS 92-1.

of life and property." 47 U.S.C. §151. The Court noted that the legislative history of the Communications Amendments Act of 1982 states that

> "radio services which are necessary for the safety of life and property deserve more consideration in allocating spectrum than those services which are more in the nature of convenience or luxury." S.Rep. No. 191, 97th Cong., 2d Sess. 14 (1981), reprinted in [1982] U.S. Code Cong. & Ad.News 2237, 2250.

740 F.2d at 1213.

This fundamental statutory obligation would be violated if public safety agencies were forced to give up their 2 GHz frequencies for other services which "are more in the nature of convenience or luxury." Fortunately, the Commission does not take such a radical step in its proposal, making it consistent with the Congressional mandate, at least as to existing public safety licenses. However, to be fully consistent with the dictates of the Communications Act, the Commission should revise its proposal to accommodate future public safety microwave needs (at least where there are no viable alternatives to 2 GHz microwave frequencies) and to protect state and local government microwave systems from harmful interference cause by new users of the band. Sections II. and III. below addresses these issues in greater detail.

C. The Commission's "Grandfathering" of State and Local Government Licensees is Further Justified by the Substantial Costs of Moving to Alternative Frequencies.

As discussed above, the Commission's proposal to "grandfather" existing state and local government users of the 2 GHz band is consistent with its statutory obligation to give priority to public safety users of the spectrum. Forcing state and local governments to vacate the band would also have exposed taxpayers to billions of dollars in expenses for replacement facilities.

The OET Study, at page 32, estimates that the costs involved in moving from 2 GHz to alternative frequency bands would range from $62,500 to $83,000 per microwave facility. Those estimates appear to be low based on independent information that PSMC has gathered from state and local governments. However, regardless whose estimates are used, there is no dispute that the costs are far more than state and local governments should be required to pay.

The State of California estimates that it would cost $150,000 per microwave path to move from 2 GHz to 4 GHz, for a total cost of $14.4 million for its 98 paths.[5/] Los Angeles County projects that a such a move would cost its taxpayers $3.8 million, or $211,000 per path.[6/] These estimates assume, of course, that frequencies would be

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[5/] This estimate is based on labor costs of nearly $17,000 and equipment costs of $130,000 per microwave path.

[6/] This estimate is based on total labor costs of $795,000, total equipment costs of $3,000,000, and frequency coordination fees of $12,600.

available (which is unlikely in many areas of California), that equipment suitable for private (as opposed to wide-band common carrier) microwave operation is available, and that no new sites or expanded building facilities would be necessary. Similarly, the State of Florida estimates that moving to 4 GHz would cost approximately $186,000 for each 2 GHz path, in large part because of the need to erect new, stronger towers necessary to accommodate heavier antennas.[7/]

Many existing 2 GHz paths are too long for higher frequency bands, and could be moved only with the addition of new transmitter sites. In those instances, the costs will be multiplied many times because of the enormous cost of site acquisition and development in many parts of the country.[8/]

The OET Study appears to underestimate the impact of path length restrictions on the cost of moving existing users out of 2 GHz. It claims that the average path length for existing facilities in the 2 GHz bands is 17 miles, a path length which can, in most cases, be accommodated in

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[7/]Moving to 6 GHz also requires greater space diversity between antennas to maintain consistent path performance. That requires either increasing the height of existing towers or building additional towers. The State of Utah's experience is that building a new microwave tower costs approximately $1,000 per foot. Costs are nearly double that in California because of higher labor costs and the need to meet stringent earthquake-resistent construction requirements. Los Angeles County recently spent $750,000 for two 200 foot towers.

[8/] Los Angeles County recently had to spend nearly $1 million for a <u>single</u> microwave site.

frequency bands as high as 6 GHz. OET Study at 18. However, there are obviously many 2 GHz path lengths which are not "average" and cannot be easily accommodated in higher frequencies. Indeed, OET itself notes that 10% of the 2 GHz paths exceed 35 miles, OET Study at 17, which translates to an estimated 600 state and local government facilities.[9/] Many of those paths in excess of 35 miles would be too long to move to frequencies above 2 GHz without extraordinary difficulty and expense, if at all.[10/]

Moving existing microwave systems to a lower frequency band (such as 1.7-1.85 GHz were it to become available for non-Federal Government users), would only be slightly less expensive. The State of Utah estimates that moving its twenty 2 GHz paths to the 1.7-1.85 MHz band would cost over $1.34 million, for an average cost of $67,000 per path.[11/]

[9/] For example, while the State of California's ninety-eight 2 GHz microwave paths average approximately 19 miles, many of its 2 GHz paths are much longer, including one 67-mile path.

[10/] Finding sites for microwave towers is becoming increasingly difficult because of zoning problems, environmental regulations, and the simple lack of undeveloped land in many urban areas. New sites are also unlikely to be available in protected and remote wilderness areas.

[11/] Replacing Utah's 12 analog 2 GHz paths with 1.7-1.85 GHz paths would cost between $54,000 and $59,000 per path, which includes $48,000 to $53,000 for equipment (the higher cost would apply to paths using 2100-2200 MHz frequencies, where new antennas would be needed) and $6,000 in labor expenses. Replacing Utah's eight digital paths would be even more expensive, with equipment costs running $100,000 per path. This data is based on estimates received from manufacturers in April, 1992.

Los Angeles County estimates that moving its facilities to the 1.7-1.85 GHz band would cost nearly $3.14 million, or over $174,000 per path.[12/] The variation in cost estimates occurs because some brands of microwave equipment would require more extensive modification, and are more difficult to modify, than others.

While OET's estimates of the cost of relocating users out of 2 GHz are lower than PSMC's, even OET recognizes "that relocation costs could prove especially burdensome to local government licensees using the 2 GHz band." OET Study at 34. Thus, OET recommends that "[i]t may be desirable for the Commission to adopt a policy which would not require these users to relocate, but rather allow them to move at their option." Id. The Commission wisely followed that advice.

[12/] This estimate is based on total equipment costs of $2.5 million, labor costs of $625,000 and frequency coordination fees of $12,600. The slightly lower equipment and labor costs are based on an assumption that existing antennas and waveguides can be re-used at the lower, but not higher, frequencies.

II. NEW AND EXPANDED STATE AND LOCAL GOVERNMENT MICROWAVE FACILITIES IN THE 2 GHz BANDS SHOULD ALSO BE LICENSED ON A PRIMARY BASIS WHERE NO VIABLE ALTERNATIVES ARE AVAILABLE

State and local governments are experiencing an increasing demand for additional microwave frequencies to support their critical public safety communications operations. In some situations, those needs can only be satisfied with frequencies in the 2 GHz band. Therefore, the Commission must revise its proposal to ensure that all current and future public safety microwave needs can be met, including those for which 2 GHz frequencies are the only viable option.

A. State and Local Governments Need Additional Microwave Capacity

There are many factors creating demand by state and local governments for microwave frequencies. In some areas, existing systems are at capacity, requiring additional frequencies on existing microwave paths. New microwave paths are also needed when a police department adds a new base station or remote mobile radio transmitter to reach an underserved area within its jurisdiction. Increases and shifts in population also create needs for new microwave links. Public safety agencies' expanded use of state-of-the-art electronic communications, such as mobile data terminals, also increases demand for efficient, secure point-to-point communications between fixed locations.[13/]

[13/] The trend towards consolidation of public safety operations also requires additional microwave facilities to (continued...)

The most significant factor, however, in the increase in demand for microwave is the migration by public safety agencies to area-wide 800 MHz trunked systems pursuant to the Commission-approved National Plan for Public Safety. These highly spectrum efficient systems often require numerous interconnected remote radio transmitters to provide mobile radio coverage over a wide area. Many Regional Plans favor transmitters with low antenna heights to reduce interference and increase the number of co-channel operations in the Region. Such spectrum efficient methods, however, require more transmitter sites and, therefore, more microwave links.[14/]

These future public safety microwave needs will not be met with 2 GHz facilities if the Commission decides to grant new 2 GHz licenses only on a secondary basis. Public safety agencies cannot operate on a secondary basis because of the danger of interference to vital communications operations. Nor can state and local government agencies afford to build microwave systems, only to be required to expend additional scarce resources to replace those systems when displaced by primary users. Therefore, state and local governments will

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[13/](...continued)
provide greater area-wide coverage. For example, when a small city eliminates its separate police department and contracts with a county or nearby community to provide police service, the contracting agency must often add new microwave links and mobile transmitters to cover its expanded area of jurisdiction.

[14/] The trend towards simulcast operation also requires microwave links, as wireline connections do not provide the necessary synchronization.

be forced to look to alternatives to 2 GHz for their future microwave needs. Those alternatives, however, are inadequate and unacceptable in many circumstances.

B. Alternative Microwave Frequencies Do Not Exist for Many Public Safety Microwave Needs

The Commission's OET Study concludes that there are alternative radio frequencies available for future 2 GHz fixed microwave users in the 4 and 6 GHz bands, though it makes little attempt to quantify those future needs. Moreover, PSMC questions the validity of that study as it does not appear to consider fully the technical constraints related to path length, equipment availability, band configuration, and frequency coordination that would inhibit public safety agency use of those bands.

It is a simple matter of physics that microwave facilities in the 4 and 6 GHz bands have shorter maximum path lengths than operations in the 2 GHz bands. A path length over the maximum distance for a particular band will be subject to signal attenuation and reduced reliability, even with high performance antennas. The maximum path length for microwave operation in the 4 and 6 GHz band is approximately 35-40 miles, though even shorter paths are necessary in areas subject to heavy rain and snow, high humidity, and substantial temperature inversions.

These path length restrictions would prevent use of 4 and 6 GHz frequencies for many future public safety needs. In some cases, additional capacity may be needed on an

existing 2 GHz path that is too long for those higher frequencies. Even when completely new paths are required, 2 GHz frequencies may be needed to accommodate a path length that is dictated by distances between existing facilities, terrain, site availability, temperature inversion and local signal attenuation problems (such as fog, high humidity, and heavy annual rainfalls).

PSMC also questions whether appropriate frequency assignments will be available in the 4 GHz and 6 GHz bands, even for path lengths that can otherwise be accommodated in those bands. The OET's analysis of the spectrum availability in the 4 and 6 GHz bands is incomplete. OET divides the nation into grids and examines the number of existing users in each grid and, from that, estimates the unused frequencies. However, OET's theoretical analysis incorrectly assumes that microwave transmitters and receivers are equally distributed in each grid.

In fact, microwave facilities tend to be grouped together on hilltops, tall buildings and existing multi-user communications towers. Such co-location of facilities leads to parallel or near-parallel paths, substantially reducing the ability to reuse spectrum within a particular grid. Transmitter location, terrain and the location of buildings in transmission paths can also create complex frequency coordination obstacles that often reduce the number of frequencies that can be used from a particular location. Thus, actual frequency availability in a particular grid is

likely to be significantly less that the theoretical frequency availability indicated by the OET analysis.

OET's estimate of available spectrum in the 4 GHz and 6 GHz bands also overlooks the limitations imposed by the FCC's technical rules that now apply to those bands. Much of the supposedly available frequency in 4 and 6 GHz bands is allocated for use by common carriers. While the Commission proposes a "blanket" waiver of its eligibility requirements for these bands, it does not propose any changes in its technical rules. Notice at ¶20.

The Commission's technical rules divide the 4 GHz common carrier frequencies into 20 MHz bandwidths, and the 6 GHz common carrier frequencies into 30 MHz bandwidths. However, private microwave systems, such as those operating in the 2 GHz bands, operate on far smaller bandwidths. Narrow bandwidth equipment capable of operating on the 4 GHz band is not even available at the present time. Nor do most private microwave systems meet the minimum channel loading requirements in the 4 and 6 GHz bands.[15/] Absent substantial revisions to the Commission's technical rules, the 4 and 6 GHz bands cannot accommodate nearly the number of private microwave users that OET estimates.[16/]

[15/] See Petition for Rulemaking of Utilities Telecommunications Council, RM-7981 (filed March 31, 1992).

[16/] The OET study also does not appear to have considered the potential impact of space-to-earth satellite transmissions in the 3.7 to 4.2 GHz band.

Therefore, the Commission's analysis of frequency availability in the 4 and 6 GHz bands appears to be overly optimistic. For many microwave users, path length, frequency congestion, inappropriate bandwidths and lack of equipment will prevent use of the 4 and 6 GHz bands.

C. Fiber Is Not An Alternative to 2 GHz Frequencies For Most Public Safety Needs

The Notice of Inquiry seeks comment as to whether fiber could be used as an alternative for 2 GHz microwave facilities. Some state and local governments already use fiber for certain non-critical applications. However, fiber is rarely an alternative for microwave as it is far less reliable and far more expensive.[17/]

Radio communications systems used by state and local government public safety agencies are in greatest demand during emergencies such as storms, fires, earthquakes, and other disasters. Those same occurrences (as well as breaks in the line caused by construction crews) can cause serious disruptions in fiber and other wireline communications systems. Such outages are obviously unacceptable for public safety agencies, especially when their services are in greatest demand.

[17/] On January 15, 1992, Captain B. E. Wenke of the Los Angeles County Sheriff's Department submitted a letter on PSMC's behalf to Chairman Sikes responding to the Chairman's questions regarding the possible use of fiber as an alternative to microwave. A copy of that letter, which was filed in General Docket No. 90-314, is attached.

Furthermore, fiber is simply inappropriate for linking many locations currently linked by microwave, such as remote mountain-top mobile radio transmitters. Installing fiber also requires rights-of-way which often take years to acquire and can be extraordinarily expensive (even with the power of eminent domain). In short, fiber is rarely an alternative to 2 GHz microwave facilities.

D. The FCC Must Accommodate Future State and Local Government Needs for 2 GHz Microwave Paths

PSMC urges that the Commission allow state and local governments to add new microwave capacity on 2 GHz frequencies on a primary basis, at least where there are no viable alternatives. As described above, state and local governments are experiencing increasing demand for microwave communication facilities which in many situations can only be located in 2 GHz frequencies.

The Commission should establish rules that allow a state or local government applicant to receive a new primary authorization on 2 GHz if the applicant demonstrates that (1) the proposed microwave path is such that frequencies higher than 2 GHz would not be feasible, or (2) that alternative frequencies are not available because of frequency congestion or coordination difficulties. The Commission should also continue to allow existing state and local government microwave systems to add new 2 GHz links and modify their systems on a primary basis where they have an established need for those additions and changes. This

would have a minimal impact, if any, on the aggregate use of 2 GHz frequencies.

PSMC also suggests that if the Commission goes forward with its overall reallocation, it should allow existing state and local government 2 GHz licensees to switch to other frequencies within the 2 GHz band without losing their primary status. This would make it feasible for a PCS operator to create a block of unused 2 GHz spectrum by paying existing state and local government users to move to other 2 GHz frequencies. Such a relocation would be less expensive and disruptive than a move to an entirely different frequency band. It might also reduce the possibility of interference between PCS and public safety fixed microwave operations.

The Commission should also continue to work with NTIA to determine the feasibility of allowing non-Federal Government licensees to share the 1.7-1.85 GHz band. If state and local government agencies are not permitted to expand existing 2 GHz facilities on a primary basis, they should be allowed to obtain licenses in the 1.7-1.85 GHz band. The propagation characteristics of this band are very similar to the 2 GHz bands. Therefore, it would be a better alternative than the 4 and 6 GHz bands for certain future state and local government microwave needs that cannot be easily accommodated in the higher bands. The Federal Government band might be particularly appropriate for

sharing with other "government" users such as state and local government public safety agencies.

III. THE COMMISSION MUST TAKE STEPS TO PREVENT INTERFERENCE FROM MOBILE USERS TO CRITICAL PUBLIC SAFETY MICROWAVE SYSTEMS

The Commission's proposed rules, if adopted, would allow new mobile services to be licensed in the 2 GHz bands on a co-primary basis with existing state and local government fixed microwave licensees.[18/] PSMC is deeply concerned that the Commission has not yet fully explored the potential that this creates for disruption of vital public safety communications operations. Indeed, the Notice barely mentions this issue in a single sentence requesting "comment on the technical feasibility of our proposal to permit sharing between new services and the existing 2 GHz fixed microwave operations on a co-primary basis." Notice at ¶24.

As explained above, state and local governments use 2 GHz microwave systems to provide the backbone for critical police and other public safety mobile radio communications systems. The lives of public safety officers and the public are, quite literally, on the line. Therefore, these public safety operations cannot tolerate even the slightest level of interference.

PSMC has yet to see any hard evidence that mobile operations such as PCS can coexist with fixed microwave

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[18/] Other existing users would remain primary for a limited time period, and then revert to secondary status.

operations on the 2 GHz bands without causing interference. The jury is still out on the several dozen PCS experimental authorizations which are trying out a variety of mobile technologies designed to avoid interference with fixed users. Until more is known, wholesale reallocation of the 2 GHz band would be reckless and premature.

If the Commission does go forward nevertheless in its proposed creation of a spectrum reserve in the 2 GHz bands, it must establish rigid interference protections. In particular, PSMC recommends that the Commission establish regional frequency coordination committees consisting of both fixed microwave and PCS operators. This is especially important in urban areas where there are likely to be dozens of different PCS operators, each with a different technology.

The Commission should also impose mandatory transmitter identification for any new service operating in the 2 GHz bands. Each mobile (or portable) unit must have its own identifier using a standard identification system. This should not be unduly burdensome since many proposed PCS technologies are premised on the ability to locate a particular hand-held unit. Interference can only be prevented and eliminated if its source can be easily ascertained.

However the Commission proceeds, it must error on the side of overprotection, as the opposite approach would endanger the safety of life and property.